CLAIMS

We claim:

1. An injectable material for soft tissue augmentation in mammals comprising cross-linked, blood plasma proteins.

2. The material according to claim 1, wherein the cross-linked, blood plasma proteins comprise zero-length cross-linked, blood plasma proteins.

3. The material according to claim 2, wherein the zero-length cross-linked, blood plasma proteins contain an amide bond cross-link.

4. The material according to claim 3, wherein the amide bond cross-link comprises a lysine-glutamate amide bond or a lysine-aspartate amide bond.

5. The material according to claim 1, wherein the cross-linked, blood plasma proteins are purified and sterilized.

6. The material according to claim 5, wherein the cross-linked, blood plasma proteins are dialyzed and autoclaved.

7. The material according to claim 1, further comprising a physiologically acceptable fluid, wherein the cross-linked, blood plasma proteins are present in an amount of from about 1% to about 10% by weight of the injectable material and the physiologically acceptable fluid is present in an amount of from about 99% to about 90% by weight of the injectable material.

8. The material according to claim 1, further comprising one or more additional components selected from the group consisting of anesthetic compounds, vitamins, growth factors, and enzyme inhibitors.

9. A method of preparing an injectable material for soft tissue augmentation of a mammal, the method comprising the steps of:

(a) ~~providing~~ obtaining a protein portion of a blood plasma sample;

(b) cross-linking the protein portion to form a cross-linked blood plasma protein portion which is said injectable material.

10. The method according to claim 9, wherein the blood plasma sample comprises autologous blood plasma.

11. The method according to claim 9, wherein step (a) comprises providing the blood plasma sample and precipitating the protein portion of the blood plasma.

12. The method according to claim 11, wherein precipitating the protein portion comprises acidifying the blood plasma sample and mixing the acidified blood plasma sample with a nonaqueous solvent.

13. The method according to claim 12, wherein precipitating the protein portion comprises acidifying the blood plasma sample to a pH of about 4.5 and adding the acidified sample to an anhydrous alkanol.

14. The method according to claim 12, further comprising preheating the nonaqueous solvent prior to the addition of the sample.

15. The method according to claim 14, further comprising maintaining the nonaqueous solvent at an elevated temperature below the boiling point of the nonaqueous solvent during the addition of the acidified blood plasma sample.

16. The method according to claim 9, wherein step (b) comprises cross-linking with a zero-length cross-linking agent.

17. The method according to claim 16, wherein the zero-length cross-linking agent comprises a compound selected from the group consisting of carbodiimides, isoxazolinium compounds, chloroformates, carbonyldiimidazoles, N-carbalkoxydihydroquinolines, tetranitromethane, potassium nitrosyldisulfonate, and diethylpyrocarbonate.

18. The method according to claim 17, wherein the zero-length cross-linking agent comprises 1-ethyl-3-(3-dimethylaminopropyl)carbodiimide.

19. The method according to claim 16, wherein step (b) comprises mixing the zero-length cross-linking agent with the protein portion in an amount of at least about 0.1% by volume of the protein portion.

20. The method according to claim 9, further comprising the subsequent step of:

(c) dialyzing the cross-linked blood plasma protein portion.

21. The method according to claim 9, further comprising the subsequent step of:

(d) autoclaving the cross-linked blood plasma protein portion

22. A method of augmenting a soft tissue defect in a skin area of a mammal, comprising injecting a material comprising a cross-linked, blood plasma protein into an intradermal compartment of the skin of the mammal.